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Behind the therapy door: what is “usual care” aphasia therapy in acute stroke management?

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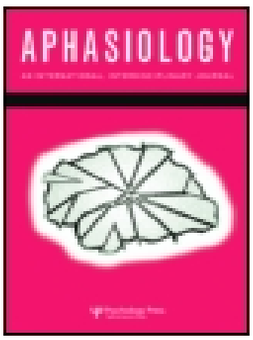

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Behind the therapy door: what is "usual care" aphasia therapy in acute stroke management?

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ABSTRACT

Background: Usual care is the term used to describe everyday practice in the management of a client within a profession. The knowledge of the tasks used in therapy and key therapeutic processes used within these treatments, provides critical information about if and how the therapy works. The Very Early Rehabilitation in SpEech Randomised Controlled Trial (VERSE RCT) had three arms with therapists within the intensive Usual Care-Plus arm (UC-Plus) providing daily direct aphasia therapy at their discretion for 20 sessions.

Aims: To describe usual care aphasia treatment provided in the Usual Care-Plus arm of VERSE RCT.

Methods and Procedures: One in four intensive Usual Care-Plus treatment sessions were video-recorded (N = 187) within the main trial. Twenty-five of these (13%) were transcribed, coded, and analysed for therapeutic inputs to describe usual care aphasia therapy using the Template for Intervention Description and Replication (TIDieR) checklist as an overriding framework.

Outcomes and Results: Therapy predominantly took place in an inpatient setting (52%) with an average session duration of 51 minutes (SD 7.8). Across the sessions, 96 different tasks were used and 57% of these focused on verbal expression at the single word level. Visual materials were most frequently used compared to the use of technology during sessions. Therapists (n = 16) did the majority of the talking during sessions and most frequently provided models as cues or problem-solving accuracy feedback. Models (55%), sentence completion (51%), and orthographic cues (44%) were the most successful at eliciting the target response.

Conclusions: Considerable variability in task selection was seen in the sample which may be a hallmark of usual care. Therapists may have a preference for single word tasks and appear to produce the majority of verbal utterances during sessions, potentially creating an unequal communication environment. This study provided a comprehensive description from the Usual Care-Plus data of the VERSE RCT and may establish a baseline of therapy type for future research.

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Introduction

Usual care is the term used to describe the everyday practice in the management of a client or group. Within a profession detailing usual care can be challenging. The specifics of what is provided within speech and language pathology (SLP) management in usual care for people with aphasia (PWA) have not been clearly documented (Godecke et al., 2014). The recent Cochrane review indicated the provision of aphasia treatment was effective when compared to no treatment (Brady et al., 2016). The review also showed that no treatment type was superior to another (Brady et al., 2016). Additionally, the timing with which therapy is commenced may be important for overall recovery with treatment commencing in the early phase (within 1 month of aphasia onset) noted to achieve greater gains than that commenced in chronic recovery (after 6-months post-stroke). Although findings in relation to the effectiveness and timing of aphasia therapy are available, these may not always influence clinicians' decision-making within the SLP context. SLPs may struggle to implement Level 1 evidence regarding the optimal type and timing of early aphasia therapy at an individual level.

Within aphasia therapy little is known about the therapeutic processes employed by clinicians in the provision of usual care. Surveys focusing on treatment and timing choices of SLPs in aphasia management have provided some perspectives. However, data from surveys and meta-analyses remains insufficient to provide a thorough understanding of how SLPs interpret and implement best practice evidence "behind the therapy door" (Foster et al., 2016). More recently rigorous trial design control groups that deliver usual care have provided a unique and valuable opportunity to establish the constituents of aphasia therapy (Godecke et al., 2016; M. Rose et al., 2017).

When describing usual care therapy, many elements have been considered such as the amount and frequency of therapy provided (Verna et al., 2009), the theoretical approach or nature of the treatment sessions (Guo et al., 2014; Kong & Tse, 2018; Verna et al., 2009), and the way in which outcomes are measured (Verna et al., 2009). These descriptions of usual care constitute a broad look at usual care therapy and aimed to reflect current practice and therapists' clinical decision-making with data collected through surveys reflecting clinicians' perspectives of therapy provided. This study looks behind the therapy door using observational data rather than self-reports or surveys to describe the therapy provided in the usual care group of a randomised controlled trial. The trial intervention had a focus on direct 1:1 aphasia therapy including the type, amount, and frequency of therapy. This detailed description of task selection, materials used, the number of client acts and therapeutic inputs (dosage) delivered within a typical aphasia therapy session provides a baseline example for manipulation of therapy variables in future studies.

The therapeutic process

In general, therapy focuses largely on practice dependent learning that occurs when an individual repeatedly uses a skill to induce lasting neuronal change (Robbins et al., 2008). Learning within therapy sessions is concerned both with the client acts and the clinician initiated therapeutic inputs (Baker, 2012; Kleim & Jones, 2008). The teaching episodes that occur in a session can be investigated to isolate and evaluate the quality and quantity of

client acts and therapeutic inputs (Baker, 2012). Therapist inputs may include components such as cueing, feedback and/or recasting. Client acts can include factors such as the quantity of errors made, number of self-corrections, or how much the language system is challenged (Guadagnoli & Lee, 2004). Typically, treatment tasks are used by therapists to implement the planned therapy. It is acknowledged that a broad range of factors facilitate and support neural and communication recovery. Within a therapeutic context, it is expected that the foundation of communication change in the patient will be due to the tasks used and the client's engagement within these tasks. However, there is little evidence available investigating the mechanism of change behind therapies (Ratner, 2006). Critical variables for aphasia therapy are thought to include the intensity (number of sessions received and how often) and dosage (number of active ingredients per session), therapeutic relationship, the medium of therapy delivery, client motivation to engage, cognitive ability, and neurological stability (Whitworth et al., 2014). The active ingredients that promote an individual's recovery may lie within these variables.

Therapist inputs that are of interest in this study of direct aphasia therapy are: i) cueing techniques and ii) the provision of feedback, as therapists are concerned with the accuracy of responses and the strength of their praise and encouragement (Horton, 2006). Cueing and feedback encourage a point of interaction between the person with aphasia and the therapist and are crucial to the therapeutic process (Byng, 1995). Cues are used by the therapist to promote accuracy and participation by assisting word retrieval and/or accurate speech production (Abel et al., 2005). Feedback serves to increase the monitoring of production and possibly alter language and/or motor neural representations to encourage self-correction and improved accuracy (Byng & Black, 1995). A specific cueing or feedback strategy may be an active agent in facilitating change in the language system because it is a therapist input that promotes the desired client act of word retrieval. In addition to cueing and feedback techniques, there are other elements of therapy that provide insight into the therapeutic process. In impairment-based aphasia therapy many therapists use task introductions and explanations to direct sessions. These may reflect the "business" of the session and the nature of the interaction between the "in control" therapist and more passive patient (Horton, 2006). Therapists may highlight the rationale behind treatment decisions or not highlight their reasoning to maintain an expert status (Horton, 2006). Analysis at the utterance level of the therapy session can afford information about the technique of therapy as well as the social processes, both of which may be active ingredients within sessions (Horton, 2006).

Usual care in aphasia therapy

Surveys and interviews have been used to gain insight into aphasia therapy provision, clinical decision-making and to help identify an evidence-practice gap. Usual care practice surveys have targeted areas including education provision (T. T. Rose et al., 2018), the intensity of therapy provision (Katz et al., 2000; Verna et al., 2009) intensive comprehension aphasia programs specifically (M. Rose et al., 2013) and rehabilitation practices (M. Rose et al., 2014). Findings are frequently heterogenous and so treatment variability may be a hallmark of usual care SLP practice in stroke recovery. The most striking finding from in-depth interviews with 14 Australian SLPs was that there was no standardisation in the management of PWA in the acute setting (Foster et al., 2016). Clinicians reported using up

to 90 different combinations of therapy techniques to treat a single case (Carnaby & Harenberg, 2013).

In a broad review of 70 Australian SLPs' aphasia management practices Verna et al. (2009) reported 80% of SLPs working in the acute setting provided therapy at a low to moderate intensity of one to three therapy sessions per week for just over 2 h of direct therapy. Therapy was most frequently provided through individual therapy sessions despite other methods such as group therapy having established efficacy (Wenke et al., 2018). Australian therapists reported that a functional approach was most widely used in aphasia therapy (M. Rose et al., 2014; Verna et al., 2009). This has also been reported in international research (Guo et al., 2014; Kong & Tse, 2018). Functional approaches seek to reduce the activity limitation and participation restriction associated with aphasia and have a focus on enhancing communicative ability in everyday life (Patterson & Chapey, 2008). This survey data is helpful in identifying some aspects behind clinical decision making; however, it lacks the detail of what happens within the session behind the therapy door.

Clinicians report clinical guidelines are the main source of research evidence used to guide their aphasia management (Verna et al., 2009). It might seem logical to conclude that if guidelines are readily available, usual care would consist of the straight forward implementation of these guidelines. However, clinical guidelines frequently lack specification about what to do behind the therapy door. Many clinicians have the knowledge of the broader evidence but do not know how to implement it within their clinical setting (Lynch et al., 2018). Even if guidelines were specific and more "recipe" based for a given clinical setting there are many barriers to implementing guidelines in practice. These include time constraints and therapist beliefs about consequences and capabilities (Shrubsole et al., 2018). Additionally, reasons for this poor uptake of research evidence include the poor representations of complex patients in research and under representation of the everyday clinician within clinical trials (Lynch et al., 2018). Therefore, despite the number of guidelines available and the content of these, much remains unknown about the state of current aphasia practice in Australia (Foster et al., 2016). Self-reported surveys and interviews give a unique insight into the decision-making of clinicians but have a bias which may skew understanding of the reality behind the therapy door. Observing a RCT therapy type usual care group creates a unique opportunity to describe aphasia therapy usual care practices.

Trial control groups

Research protocols completed in acute care settings frequently describe their control group as receiving usual care and this refers to clinical management that is at the discretion of the hospital site and their treatment protocols (Worrall et al., 2016). This can mean there is a high degree of variability in care delivery (National Stroke Foundation, 2016) in the control group between participating sites. Retrospective analysis of the control group can provide valuable insight into usual care practices. Palmer et al. (2018) used the clinical and cost-effectiveness of computer treatment for aphasia post-stroke (Big CACTUS) control group data to describe the usual care provided within their study. Usual care recorded for all 278 participants provided data on the practice between 2014–2016 for UK SLPs. A quantitative content analysis was conducted to identify the

frequency of goal categories, the average therapy time received, the length and frequency of therapy sessions, the personnel involved and mode of delivery. Six goal categories (rehabilitation, enabling, review, assessment, supportive, and activity to support therapy) were identified within the usual care therapy that was delivered within the trial. The median amount of therapy received was 160 min session every 2 weeks and mainly functional goals were addressed (Palmer et al., 2018).This research highlighted the increasing priority given to describing intervention across all intervention arms of a RCT. However, detail into what happened within the therapy sessions in the trial was not outlined and would add further value to the interpretation of the trial results.

Intervention reporting

The care received in usual care is supposed to reflect the wide range of care as usually received by patients in daily practice, whether it is adequate or not (NIH Rockville, 2002). In a review of 73 pragmatic primary care trials not specific to aphasia, most of the clinicians providing therapy in the control groups were not given any instruction on how to provide care, heightening the external validity of the study. A few trials provided a prescription of what standard care should constitute exerting more control over the control group, but being less reflective of true usual care. This prescription may also reflect an unclear perception of what usual care would entail and therefore more instruction was given to standardise the control group. To increase our understanding of usual care provided within trials, guidelines have been developed on the reporting of the control group within trials such as the CONSORT statement (2010) and the related extension Template for Intervention Description and Replication (TIDieR) checklist (Hoffmann et al., 2014). The TIDieR checklist contains 12 items and includes general items related to the therapy such as task selection, therapy location, and dosage as well as how the intervention is tailored or personalised for the patient (Hoffmann et al., 2014). The instructions state that it should be used to describe each intervention not just the main intervention under investigation. The use of a checklist such as TIDieR has been emphasised in complex therapy interventions such as those for people after stroke and it has been used in stroke rehabilitation studies as a systematic way to describe the interventions (Van Vliet et al., 2016). Despite this, many published articles may lack detail on the intervention administered (Roulstone, 2015; Van Stan et al., 2019).

Aims

The VERSE RCT was a three-armed RCT which investigated whether intensive aphasia therapy was more effective and cost saving than usual care in very early aphasia recovery after stroke (Godecke et al., 2016). The secondary hypothesis of the trial addressed whether a prescribed therapy type (VERSE arm) was more efficacious than usual care therapy (Usual Care-Plus arm) when provided at the same intensity and equal overall treatment amount.

The aim of this study was to describe, in detail, the direct aphasia therapy given in the Usual Care-Plus arm of the VERSE RCT. A sub aim of this research was to describe the dosage (number of client acts and therapeutic inputs) delivered within the session in Usual Care-Plus. The TIDieR checklist has been used as a conceptual framework for this study (Hoffmann et al., 2014).

Method

Very Early Rehabilitation in SpEech (VERSE) Trial

The VERSE RCT provides the context for this study as is described briefly here. For further information about the trial protocol please refer to Godecke et al. (2016). The therapy arms in the RCT were:

(i) Usual Care: Participants randomised to this group received care that is typical for aphasia management and at the discretion of the treating SP.
(ii) Usual Care-Plus: Participants received treatments typical of direct aphasia therapy, as compared to assessment, counselling, or education, at the discretion of the treating SLP, but with a defined therapy regimen of daily sessions for 45–60 min duration over 20 sessions. Direct aphasia therapy included 1:1 impairment-based therapy, impairment-based computer training, social training, group impairment-based therapy, group social training, or Augmentative and Alternative Communication (AAC) training. No further prescription regarding therapy type was given to Usual Care-Plus therapists in training or written material.
(iii) VERSE RCT intervention: The intensity of this arm of therapy matched that of the Usual Care-Plus arm but the intervention was prescribed and standardised according to the specific VERSE RCT intervention protocol.

This study was not concerned with the intensity of usual care therapy provision and so the Usual Care-Plus arm represents the control arm. It is noted that for the primary hypothesis of an investigation of intervention intensity, the Usual Care arm was the overall trial control arm.

VERSE RCT recruited and randomised 246 participants, 81 in Usual Care, 82 in Usual Care-Plus and 83 in VERSE or 82 participants per arm from sites across Australia and New Zealand. All therapists within the trial completed standardised therapist training, including the provision of a manual. They were also required to log all session data. Therapists from the two intensive therapy arms, VERSE, and Usual Care-Plus, were also required to record four therapy sessions over the 20 sessions completed. Therapists were encouraged to record one session a week. Of the 246 participants included in the VERSE trial (81 in Usual Care, 82 in Usual Care-Plus and 83 in the VERSE condition), 434 therapy videos from the intensive treatment arms (247 VERSE, 187 Usual Care-Plus) were recorded between June 2014 and March 2018. These video recordings were stored in a secure cloud-based service and were examined using broad treatment fidelity and differentiation analyses (Godecke et al., 2016).

VERSE RCT usual care investigation

Participants

One element of data for the current study involved the analysis of a subset of therapy videos from the Usual Care-Plus arm of the VERSE RCT. To be included in this study, participants were required to have a VERSE- RCT primary outcome score at 12 weeks and

26 weeks on the Western Aphasia Battery Revised – Aphasia Quotient (WABR-AQ) (Kertesz, 2006) and have completed the full treatment protocol. Additionally, their therapy videos needed to be at least 40 min in length, not contain the present author as the therapist and be playable on a computer, i.e. not corrupted. A research assistant not involved with the current project used a computer generated block randomisation sample of videos stratified for aphasia severity to select a sample of twenty-five Usual Care-Plus therapy videos to examine usual care activities in aphasia therapy. This study analysed the treatment delivered to 19 (23%) of the total participants included in the Usual Care-Plus arm (n = 82) of the VERSE RCT trial and 25 (13%) of the Usual Care-Plus therapy videos received through the trial. This was the maximum number feasible in the timeframe due to the detailed and time-consuming nature of the analysis performed. The computer generated randomisation identified two different therapy sessions for four participants and three different therapy sessions were selected for one participant. Table 1 displays demographic and stroke characteristics for the 19 participants.

Template for Intervention Description and Replication (TIDieR) Statement

The TIDieR checklist (Hoffmann et al., 2014) format was used as a framework to describe the therapy provided to participants within this study as it contains a number of categories related to the aims of this study. While the therapy videos were the primary source of data for examining the therapy sessions and concern TIDieR items 8 and 9, further information was gathered from a diverse range of sources to provide a complete intervention description. See Table 2 for the detail of each TIDieR item and how it was addressed within this study. Please note that items 10–12 are not reported within this study as they were not applicable to the

Table 1. Participant demographic and stroke characteristics.

	n = 19
Age Mean (SD)	68.0 (14.7)
Female (%)	7 (37)
Oxford Stroke Classification	
Hemorrhagic (%)	1 (5)
PACs (%)	16 (84)
PoCs (%)	1 (5)
TACs (%)	1 (5)
Baseline WABR-AQ Mean (SD)	43.1 (24.3)
Baseline WABR-AQ Severity Classification (%)	
Mild	7 (37)
Moderate	6 (32)
Severe	6 (32)
Modified Rankin Scale Score	
2 – Slight	1 (5)
3 – Moderate	10 (53)
4 – Moderate Severe	4 (21)
5 – Severe	4 (21)
National Institutes of Health Scale Score	
Mean (SD)	8.7 (6.5)

Note. PACs = Partial Anterior Circulation syndrome; PoCs = Posterior Circulation syndrome; TACs = Total Anterior Circulation syndrome.

Table 2. TIDieR checklist as applied in this study (Hoffmann et al., 2014).

Item Number	Item	Detail
1	Brief Name	Sourced from the main trial documentation
2	Why	Sourced from the main trial documentation
3	What – Materials	The therapy materials were noted as they appeared in the video recording.
4	What – Procedures	A description of the treatment task/activity (e.g., picture naming) along with the desired output level (i.e. single word, sentence or conversation level) was generated.
5	Who Provided	Sourced from the main trial database.
6	How	As per main trial documentation.
7	Where	Sourced from the main trial database.
8	When and How much	Description of the number of times the intervention was delivered and over what period of time. Within this study this also includes the dosage conceptualised as therapeutic inputs such as verbal output measures provided in the session.
9	Tailoring	Description of how the intervention was personalised or adapted. This was conceptualised as clinical decision making by the therapist that would personalise the treatment given. Included in this section is task explanations and therapy rationales. Key therapeutic inputs were also cueing and feedback and are reported in this section.

Usual Care-Plus arm of the VERSE RCT. The following methods relate to TIDieR items 8 and 9.

Transcription

Each therapy video was transcribed verbatim using Systematic Analysis of Language Transcripts (SALT) (Miller, 2008) software and as per SALT guidelines (available at http://saltsoftware.com/resources/tranaids).

Measures of therapeutic inputs

The measures chosen for therapeutic inputs are displayed in Tables 3 and 4 and relate to TIDieR items 8 and 9, respectively. Table 3 contains measures that SALT calculated based on the software formulas. Table 4 contains measures that were coded by the primary researcher and counted by the SALT software. In SLP interventions tailoring is necessary by the therapist to deliver a personalised intervention according to the participant's preference, skills, or situation (Hoffmann et al., 2014). Therapists in Usual Care-Plus tailored their inputs at their discretion based on clinical judgement for how the therapy should be provided.

Although not the main focus of this study, two measures related to client acts were collected and are reported in the results to provide contrast and context to the therapeutic inputs. These measures were the total words and the total utterances produced by the participant in the session.

Table 3. Measures of therapeutic inputs calculated by SALT software – TIDieR Item 8.

Measure	Definition
Total Utterances	Total number of utterances produced by the therapist calculated by SALT software.
MLU (words)	Mean Length of Utterance (MLU) in words calculated by SALT software.
MLU (morphemes)	Mean Length of Utterance (MLU) in morphemes calculated by SALT software.
Total words	Total number of words said by the therapist calculated by SALT software.
Utterances Per Minute (UPM)	Utterances per minute calculated by SALT software.
Words Per Minute (WPM)	Words per minute calculated by SALT software.
Mean turn length (words)	Mean turn length calculated by SALT software.

Table 4. Measures of therapeutic inputs – TIDieR Item 9.

Measure	Definition
Task explanation	Presence of an introduction and/or explanation of task from the therapist.
Rationale Discussion	Presence of discussion from the therapist about why the task was chosen.
Total number of cues used	Total number of cues used by the therapist.
Cue Type	Where a cue was used it was coded according to the type (phonological, semantic, orthographic, visual, forced alternative, sentence completion, articulatory placement, direct model).
Cues used with success	The number of times a cue was used by the therapist and the participant responded correctly.
% cues that were successful	Percentage of the total number of cues used by the therapist that were successful.
Feedback	Type of feedback given. Two types were coded. Supportive feedback aimed to facilitate word retrieval without providing specific word information cues and included subtypes of elaboration, clarification and requests for more information. Problem solving feedback represented a way of externalising the word finding process and explaining the errors and consisted of two sub-types, correct/incorrect and an explanation of error (Byng, 1995).

Analysis

The language samples were analysed using the SALT software and the counts of the codes, demographic data and SALT calculated measures were entered into the statistical software program SPSS (IBM Corp, 2015). Measures of central tendency are presented for the counts of therapeutic inputs. Descriptions of the categorical data are provided.

Reliability

Therapist inputs as per Table 4. were calculated by the SALT software automatically and therefore considered consistent and reliable. Three videos (one from each severity in Usual Care-Plus) were re-coded for inter and intra-rater reliability, comprising 12% of the total Usual Care-Plus sample. The first author of this paper was the first rater. The second rater was a fourth year speech pathology student who received 2 h training in the transcription and coding procedure. Reliability was established using the intra-class correlation coefficient (ICC) in SPSS (IBM Corp, 2015) with a single measures, consistency 2-way mixed effects model as per Koo and Li (2016) guidelines. The ICC was established on the coding of cues used with success, as this measure was more subjective to code. For the inter-rater reliability the ICC was.927 with 95% confidence intervals of −1.95 to .998 which is rated as poor to excellent. For intra-rater reliability, the ICC was .993 with 95% confidence intervals of .755–1.00 which is rated as good to excellent.

Results

Results are presented as per the corresponding item in TIDieR (Hoffmann et al., 2014).

Item 1 Brief name

The intervention was called the Usual Care-Plus intervention of the VERSE RCT trial.

Item 2 Why

Participants received treatments typical of usual care aphasia therapy, at the discretion of the treating therapist at the prescribed intensity of: 20 sessions completed daily, 45–60 min duration over 20 working days. As observed in the videos aphasia therapy included 1:1 impairment-based therapy. Therapy type was not prescribed and so the Usual Care-Plus arm of the trial represents a control group for intervention type.

Item 3 Materials

Visual materials were used most frequently within the sessions. Sixteen (64%) sessions used visual materials (for example, picture cards), six used electronic materials (24%) (for example, an iPad) and three used no materials (12%). It should be noted that more than one type of material was used in seven sessions (28%).

Item 4 Procedures

The procedures in the therapy session are highly dependent on the type of therapy task and the number of tasks used in the session. Table 5 summarises the number of therapy tasks completed within the 25 analysed sessions. Twenty-three sessions (92%) contained multiple tasks.

A detailed list of the type of tasks performed in Usual Care-Plus is presented in Table 6. The type of task column lists the name of the task performed such as picture naming. On many occasions, multiple videos included the same type of task and therefore, the quantity is included in a separate column. As shown in Table 6 single word tasks were dominant.

Item 5 Who provided therapy

Sixteen different therapists provided the therapy over the 25 sessions in this sample. The therapists were employed at 11 different Australian hospitals. The average years clinical experience working with people with aphasia for the therapists (n = 14) was 5.5 years (median 3.5 years, range 1–16 years).

Table 5. Summary of the number of tasks completed across the therapy sessions.

Task	n = 25
Total number	96
Total number of different tasks	51
Average no. per session	3.8
Output level (excludes iPad tasks)	
Single word level	53/96 (55%)
Sentence level	27/96 (28%)
Conversation/paragraph level	10/96 (10%)
Modality	
Verbal output	65/96 (68%)
Written output	11/96 (11%)
Receptive output	14/96 (15%)
iPad tasks	6/96 (6%)

Table 6. Tasks completed in treatment sessions.

Type of Task, in order of most to least frequent (n = 51)	Quantity (n = 96)
Expressive Language – Verbal	
Single Word Level	
Picture Naming	12
Semantic association naming	5
Automatic Speech	4
Odd one out (semantic)	3
Naming minimal Pairs	2
Object naming	2
Question and Answer task	2
Selecting prepositions	2
Generating synonyms	2
Generating antonyms	1
Convergent naming	1
Repetition of non-words	1
Phonemic Generative Naming	1
Semantic Category identification	1
Single word repetition	1
Sentence Level	
Picture description (not personal photo)	5
Constraint Induced Aphasia Therapy (CIAT) style barrier game	3
Reading aloud	3
Verbal reasoning (idioms and problem solving)	2
Articulate game (verbal explanation)	1
Personal photo description	1
Procedural discourse (e.g., making a cup of tea)	1
Reading semantic feature analysis prompts for to generate words	1
Script training	1
Solitaire card game (verbal requests)	1
Taboo (verbal explanation)	1
Conversation Level	
Conversation	4
Situational Language (e.g., ordering a coffee)	1
Expressive Language – Written	
Single Word Level	
List writing (self-generated words)	2
Single word writing (from dictation)	2
Crosswords	1
Functional writing (name, address etc.)	1
Hangman game (letter and word generation)	1
Sentence Level	
Written work sheet for sentence composition	2
Writing answers to reading comprehension	1
Written picture description	1
Receptive- Reading Comprehension	
Paragraph Comprehension (answering questions)	2
Receptive – Auditory Comprehension	
Single Word Level	
Object to picture matching	2
Picture matching (same picture to same picture)	1
Semantic association receptive task (match associated pictures)	1
Semantic association (which one can you eat?)	1
Single word auditory comprehension	1
Sentence Level	
Semantic description comprehension task	2
Following a receptive command to place a picture in a grid	1
Paragraph level	
Newspaper article with multiple choice questions	1
Paragraph comprehension (listening for the main idea)	1
Yes/No Questions after listening to a paragraph	1
Other- iPad Tasks	
iPad written single word to picture matching	2

(*Continued*)

Table 6. (Continued).

Type of Task, in order of most to least frequent (n = 51)	Quantity (n = 96)
iPad articulation app	1
iPad choosing the missing letter	1
iPad sorting jumbled letters	1
iPad verbal single word to picture matching	1

Item 6 How therapy was provided

All sessions included in the 25 videos were individual 1:1 therapy sessions conducted in person.

Item 7 Where

Therapy took place predominately within the inpatient setting (52%) or personal home (36%). The majority of sessions were conducted in Australian clinics (88%) with the remaining in New Zealand (12%).

Item 8 When and how much

Within the VERSE RCT participants received 20 sessions over 5 weeks in the intensive arms of the trial (Usual Care-Plus and VERSE). Within this study, the focus of Item 8 of TIDieR was on the dosage which was defined as the number of key therapy inputs included in the session (Baker, 2012). The number of times a therapist input would occur was a function of the therapy session duration as measured in minutes. This was controlled within the VERSE RCT as the sessions had to be greater than 45 minutes in length and the selected participants completed 20 sessions of Usual Care-Plus therapy. The average session time across the 25 Usual Care-Plus videos was 50.9 minutes (SD 7.8). Session number fourteen, nine and twenty within the intensive block of twenty sessions were the most frequently viewed.

A summary of the verbal output from the therapists in the sessions is presented in Table 7. Therapists did most of the talking during the sessions with therapists producing on average 2849 words (65%) per session compared to 1512 (35%) from the participant. Similarly, therapists said 680 (58%) of utterances compared to 483 (42%) from the participant.

Table 7. Summary of verbal output from therapists per session.

Measure	Mean (SD)
Total Therapist utterances	679.6 (226.0)
Therapist MLU (words)	4.4 (0.9)
Therapist MLU (morphemes)	4.9 (0.9)
Therapist Total words	2848.6 (857.9)
Therapist UPM	14.5 (7.6)
Therapist WMP	55.8 (14.0)
Mean turn length (therapist)	9.7 (2.8)

Note. MLU refers to Mean Length of Utterance, UPM refers to Utterances Per Minute, WMP refers to Words Per Minute

Item 9 Tailoring

When introducing a task, the majority of therapists gave a task explanation (n = 22, 88%) however, a rationale for why the therapy or task was chosen was provided infrequently (n = 7, 28%).

Across the 25 sessions, 2165 cues were used by therapists with 962 being used successfully. The average number of cues used each session was 86.6 (SD 74.7). On average these were successful 38.5 times (SD 48.5) or 38.2% of the time (SD 26.9). These are displayed by category in Figure 1. The average number of times these cues were successful is also displayed by category in Figure 2.

Therapeutic inputs related to the feedback provided are displayed in Table 8. Across the 25 therapy sessions, there were 1501 instances of problem-solving feedback and 1193 instances of supportive feedback. Problem-solving accuracy feedback (correct vs. incorrect) was most frequently provided. Feedback was provided throughout and at the end of a task.

Discussion

This study has provided a comprehensive description of the Usual Care-Plus data of the VERSE RCT trial. It offers a useful insight into the way in which aphasia therapy is provided in usual care sessions within Australia and New Zealand and establishes a baseline for future research. With the intensity regimen kept constant, therapy ingredients and therapist behaviours varied and these behaviours are reflected upon here.

Description of therapy

We provided a description of usual care practices in aphasia therapy and decisions made by the therapists regarding the content of their sessions. The TIDieR (Hoffmann et al., 2014)

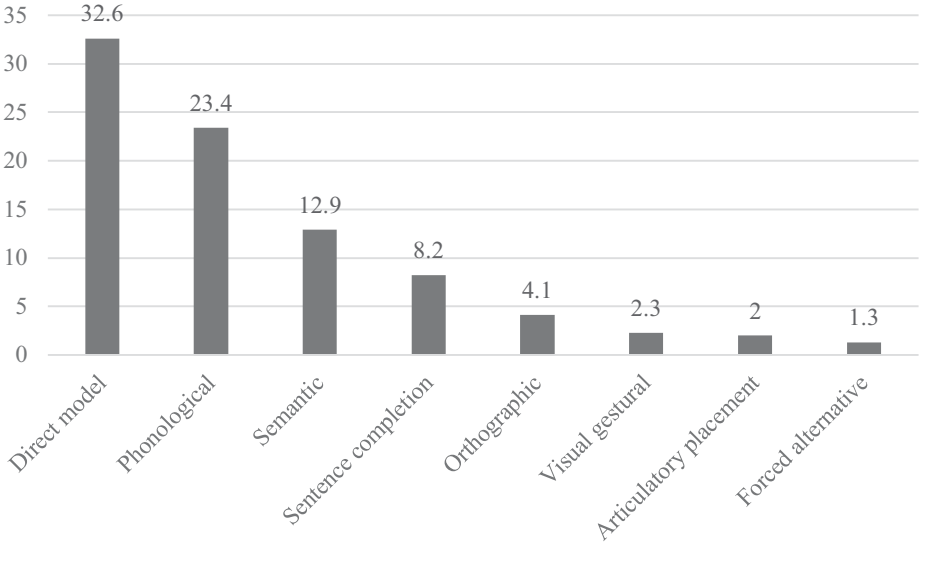

Figure 1. Average number of cues used by cue category per session.

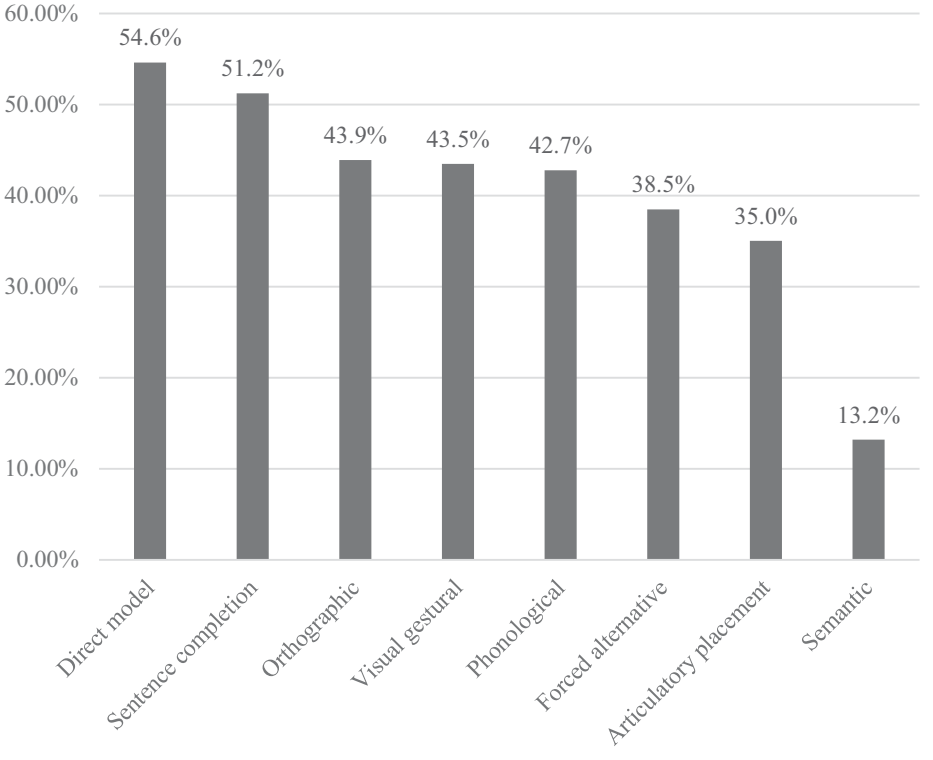

Figure 2. Average number of times a cue was used with success in a session by cue category.

Table 8. Summary of types of feedback used by therapists per session.

Measure	Mean (SD)
Problem solving accuracy feedback	51.8 (34.7)
Supportive clarification feedback	10.9 (11.3)
Supportive elaboration feedback	8.9 (11.7)
Problem solving explains error feedback	8.3 (8.8)
Supportive requests feedback	7.5 (17.9)

framework was useful to systematically and thoroughly report on the usual care condition and is recommended for future use in this way. Across the 25 sessions analysed within this study, there was a significant variety in the nature of the tasks and the modalities used within these tasks. Most frequently, therapists used visual materials that were not electronic within therapy sessions. If electronic materials were used, an iPad was favoured. Within this study, the majority of tasks targeted the single word level despite the sample being balanced for aphasia severity. It is possible that therapists have a preference for single word tasks even if a patient may be speaking at a phrase or sentence level. This suggestion is in line with previous research showing treatment for aphasia is typically concerned with single word level treatments (Boyle, 2011). Assessment of aphasia is frequently at the single word level and may influence treatment decisions. For example, 93% of Australian clinicians reported the Western Aphasia Battery (WAB), Boston Naming Test (BNT) and Psycholinguistic Assessment of

Language Processing Activities (PALPA), predominantly single word level assessments, as the main assessment tools used in practice (Verna et al., 2009). Clinicians may, therefore, believe word-finding difficulties are repaired through tasks focused at the single word level or may find the transferability of evidence into practice easier at that level when using tasks involving single words.

Therapists have previously reported preferencing a functional approach in therapy (Verna et al., 2009). A functional approach to therapy focuses on improving the individual's ability to perform communication activities of daily living (Galletta & Barrett, 2014). This approach is usually contrasted with an impairment-based approach that focuses on treating the aphasia impairment at the body function and structure domain of the ICF (Galletta & Barrett, 2014). In this study, there was a predominance of single word focused tasks. At a surface level, single word tasks, and the type of tasks that were observed in this study (i.e. picture naming, automatic speech, semantic associations, etc.) appear to reflect an impairment-based approach to therapy. In some instances, it is possible that therapists select more "traditional" impairment-based tasks; however, feel that their overall therapy goals reflect a functional approach by selecting functional targets as the focus of the therapy task. However, target selection was not considered in this study and so it is not known if therapists chose personally relevant or functional targets at the single word level in some instances and therefore combined therapy approaches. This is consistent with therapists also reporting that they use a combination of approaches in aphasia management (Verna et al., 2009).

The lower incidence of discourse-based treatments within a usual care arm of an RCT is noteworthy. Barriers to therapists implementing conversation-based therapies have been documented and this may influence the selection of primarily single word tasks. These include a perceived lack of evidence for the active ingredients of conversation-based therapy and concerns about other professionals perceiving SLPs as "just having a chat" (Sirman et al., 2017). Therapists may also preference single word tasks due to a lack of confidence in administering discourse-based therapy especially if being recorded.

On average therapists completed four tasks in a 51 minute therapy session and there were 51 different tasks observed across the 25 videos analysed. This is similar to investigations into dysphagia by Carnaby and Harenberg (2013) who found over 90 therapy combinations were used to treat one case and concluded that there was no "standard" usual care in dysphagia management. It is likely that tasks may have been targeting the same verbal output goal in a session or similar underlying language recovery mechanisms. For example, a therapist might use three different tasks in a session targeted at generating verbs. Regardless, for research, this level of variability within a usual care control group is problematic for examining components of treatment fidelity and comparing control and intervention arms. Treatments are therefore being implemented in practices that combine several different forms of intervention, typically the combination of therapies is untested and the implementation may be in direct contrast to how they were evaluated (O'Hare & Doell, 2015; Waller, 2009). These have been labelled as "third wave therapies" (Waller, 2009) or "therapy cocktails" which may include limited outcome measurement and so have a reduced capacity to move the evidence base forward. The use of therapy cocktails may be because clinicians often feel overwhelmed by conflicting evidence within the intervention literature and are not confident in applying the evidence to their caseload (Douglas et al., 2014; Foster et al., 2015). Additionally, therapists may

struggle to see their patients in the homogenous groups of participants included in RCTs (Pring, 2004) or be concerned about repeating tasks in sessions. However, clinical decision-making is complex and the management of people with aphasia is multi-faceted (Ciccone et al., 2013). Therapists make real-world treatment decisions based on a variety of factors including client motivation, family influences, setting constraints (Hersh & Ciccone, 2016) and their own therapy ideologies (Hinckley, 2005). Therefore, they are likely to modify their interpretation and implementation of research evidence based on their own therapy beliefs, individual needs of the person with aphasia, and the context they are working within. This is in line with the concept of evidence-based practice that is understanding the evidence base and then applying and adapting it to the care of individual patients (Sackett et al., 1996).

The naturalness of therapy

To our knowledge, this is the first study to provide data from across an entire aphasia therapy session on the verbal outputs produced by therapists and PWA. In analysing the number of utterances and words produced, it was clear therapists did the majority of the talking during sessions. The dominance of the therapist in the therapy session with PWA has been previously documented (Silvast, 1990) with the therapist being perceived to have a greater share of the load compared to what is expected of a "typical" speaker in day to day conversation (Ferguson, 1996). This greater share of talking is relevant when considering a possible dosage threshold for the number of client acts, or the amount of talking that may be required in a session to induce neuronal change. This paper was not designed to provide an analysis of the conversational moves by the therapist; however, the observed ratio of therapist to participant talking could reflect the nature of the therapeutic relationship and the control that the therapist takes over the session (Horton, 2006). This ratio may be expected as the therapist was providing support for frequent communication breakdowns related to the reduced communicative capacity of the PWA (Horton, 2006) which may contribute to a less natural communicative interaction.

Much of the above evidence such as the amount of therapist talking, type of cueing used and the predominance of single word task selections, contributes to the notion that the therapeutic environment is not a natural one. Pragmatic treatments for aphasia aim to improve the use of language in natural situations (Basso, 2010). This approach is due to the fact that PWA frequently have intact pragmatic abilities and the idea that returning communication to pre-morbid naturalness is the goal of therapy (Basso, 2010). Additionally, increased saliency of therapy relates to neuroplasticity principles and increased client motivation, both of which are thought to beneficial for recovery (Bryan et al., 2009; Pulvermuller & Berthier, 2008). A "helper-helpee" type relationship may be established that contains rehearsed conversation and is less representative of natural discourse (Horton, 2006). Real-life discourse is complex and can be a difficult context to reproduce in therapy (Boyle, 2011). The freedom in a conversation to change topics and vary the syntax and word selection is challenging when treatment is focused at a specific linguistic level such as the single word level (Boyle, 2011). The dynamic between a therapist and PWA is unique, it is not a "normal" conversation as would be observed in other settings. However, it

is hoped that if the therapist can replicate situations that are as close to possible as natural the PWA will gradually be able to produce more information and be able to sustain it in daily living (Basso, 2010).

Therapist inputs

Therapy involves a complex sessional structure with layers of inputs, reactions, and interactions. Therapist inputs including task explanations, cueing, and feedback are believed to facilitate aphasia recovery. Therapists may aim to tailor sessions with their inputs adhering to adult learning and neuroplasticity principles.

Task explanations

Task explanations were frequently surface level and the majority of the time there was no mention of the rationale behind the chosen tasks or a discussion of possible mechanisms of action in the brain. This is not in line with adult learning principles that suggest tasks should be relevancy orientated and adults need to be sufficiently informed to see the reason for learning to increase their motivation and learning capacity (Bryan et al., 2009).

Cueing

Whilst the tasks were varied, the therapeutic inputs in the sessions appeared to be consistent and well-established techniques in relation to cueing and feedback (Abel et al., 2005; Linebaugh et al., 2005). Cueing was the main therapeutic technique observed in this study with an average of 87 cues used by therapists per session. Irrespective of the task, therapists consistently used cueing to support the participant in completing the task. While cues were consistently used across tasks the use of a cue resulted in a successful response in 38% of occurrences. However, we interpret this measure with caution due to the poor inter-rater reliability observed in the study for the measure of "cues used with success". The poor inter-rater reliability may be due to a variety of factors including subjectivity of the measure, the low sample size for this specific measure or insufficient training of the second rater in identifying a successful response to a cue.

If a cue resulted in a successful response in 38% of occurrences, it is possible that other mechanisms of action are behind verbal improvement or this level of cueing success is sufficient to induce change, as shown in the findings of the VERSE RCT trial. However, it is not known if this is the optimal level of success to produce the maximal possible improvement for each person with aphasia and if the required level of successful cueing is the same for all individuals. Treatments that aim for error minimisation intend the participant to produce or comprehend the target word with the least amount of error practice possible. The rationale behind error minimisation treatments are that correct production of the target as quickly as possible will strengthen neural networks and lay foundations for improved verbal production in early stroke recovery (Varley, 2011). In this way, cueing is thought to be a potential active therapeutic input.

To our knowledge, this is the first study to investigate cueing in a real-world clinical context within a usual care therapy arm. We acknowledge that there are reliability issues in this novel methodology. In our study, direct modelling was the most frequently used

cue and unsurprisingly most successful. This is because the target word is modelled to the patient, which in turn requires word repetition, a simpler form of word production with less cognitive load and risk of error (Fillingham et al., 2006). Phonological cueing followed by semantic cueing were the next most frequently used. However, semantic cueing ranked last in effectiveness in contrast to other evidence about the importance of semantic information for word retrieval (Abel et al., 2005). Phonological cues were as effective as orthographic, visual, and gestural cues. Given how frequently semantic cues were used but how infrequently they were effective, clinicians may like to re-consider the value of semantic cueing, especially if aiming for an error minimization approach. There is a growing body of evidence for phonological cueing being effective in reducing error rates (Best et al., 2002; Cheneval et al., 2018) perhaps due to the recruitment of many brain regions (Nardo et al., 2017). However, further research is needed regarding the mechanisms behind the different types of cueing and the longer-term effects of cueing on generalisation to other communication contexts outside the clinic room.

Feedback

On average feedback was provided at a similar frequency to cueing during a session and mostly related to a specific item rather than the task as a whole. The majority of feedback was problem-solving which informed the participant of whether their answer was correct or incorrect and was often followed by a cue if an incorrect response was given. This was consistent with previous research that showed feedback is usually limited to providing information about whether a response is correct or incorrect but is rarely qualitative or explanatory (Byng, 1995). It is understandable that a statement of whether the response was correct/incorrect feedback was provided frequently given that the majority of tasks were single word level and an utterance could be judged straightforwardly as correct or incorrect. However, this style may contribute to the perception of therapy as "training" involving a more passive recipient (Byng, 1995). Supportive feedback is frequently given in the form of praise or positivity as seen in this study. As documented previously this was not necessarily related to the accuracy of the response (Byng & Black, 1995) and may be related to the therapist's perception that their role is to encourage the PWA and reward functional attempts even if inaccurate. Further research is needed in relation to the impact of feedback on the individual's performance within a task in order to develop a greater understanding of the impact of feedback on learning and maximising success within the session and generalisation of skills into communicative contexts outside a clinical context. Additionally, more research is needed into the effect of different types of feedback and the timing with which the feedback is provided within a session as has been investigated within the motor speech literature (Maas et al., 2008).

Limitations

This study analysed 25 videos of Usual Care Plus speech pathology intervention. This represents a small sample (13% of Usual Care-Plus videos) and so there is a limit to the extrapolation of results to represent usual care and in the management of aphasia as a whole. The inter-rater reliability of the cues used with success measure was poor and therefore results concerning cueing should be interpreted with caution. Additionally, this

study used videos from Usual Care Plus, the usual care-intensive arm of the VERSE-RCT, not usual care provision that was provided on a non-intensive schedule. It is possible that when required to administer therapy on an intensive schedule, usual care therapists changed their practice and therefore, results may not be generalizable. The well-documented Hawthorne effect must also be acknowledged within this work (McCambridge et al., 2014). The awareness of being recorded may have impacted the behaviour and decision-making of the participant and therapist. It is also possible that the physical requirements of recording a session may have had an impact on the clinician's choices about the location of the session and the types of activities completed during the session.

Future directions

This study provides a snapshot of therapy provided within usual care, provided intensively, in Australia and New Zealand. The study was possible due to the systematic collection of therapy data as part of the VERSE RCT and so the collection of therapy type data in the control arm of a RCT should be prioritised within the design of future studies. Growing the evidence in this way provides a baseline for documenting change in usual care practices over time which provide an insight into the way in which research findings are being translated into clinical care. However, further research is needed to determine how to most effectively measure change in patient outcome in a clinical context. Through establishing what usual care is there can be a greater focus on establishing outcome measures. Research is underway for establishing a consensus outcome set to enable accurate measuring of the effect of therapy within a real-world clinical context (Wallace et al., 2019). Examining the contents of the real-world clinical context that is usual care can heighten the sensitivity of outcome measures to ensure that they accurately reflect recovery. Outcome measures are important for comparing research results as well as in clinical contexts (Armstrong, 2018). Future studies can build on the normative data gathered and research consumers can have greater confidence the researchers were able to make informed statements about treatments knowing that they were sufficiently differentiated. Further aphasia studies addressing task explanations, cueing and feedback as used in the clinical context and their effect on target attainment would benefit our understanding of therapy mechanisms.

Conclusion

In this study therapists utilised a wide range of tasks, produced most of the verbal output in the session and consistently used feedback, cueing, and task explanations to tailor therapy sessions. Therapists mix a therapy cocktail that is served in many types of glasses. Therapists rarely get the opportunity to observe their peers or seniors after graduation from university. We have reflected the importance of describing an intervention in the control arm of a trial. It is only through documenting this aspect of treatment fidelity that a greater understanding can be gained of everyday practices and how they differ from our proposed interventions.

Disclosure statement

The authors report no conflict of interest.

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